

CONTENTS

Preface	v
Acknowledgments	vi

I PHYSICS AND MECHANICS OF INTERFACES

Role of the densest lattice planes in the stability of crystalline interfaces: a computer simulation study	3
D. Wolf and S. Phillpot (Argonne, IL, U.S.A.)	
Molecular dynamics study of a bicrystal at elevated temperatures	15
T. Nguyen and S. Yip (Cambridge, MA, U.S.A.)	
Embrittlement of interfaces by solute segregation	23
J. R. Rice and J.-S. Wang (Cambridge, MA, U.S.A.)	
Intrinsic toughness of interfaces	41
A. S. Argon, V. Gupta, H. S. Landis and J. A. Cornie (Cambridge, MA, U.S.A.)	
On microstructural evolution and micromechanical modelling of deformation of a whisker-reinforced metal-matrix composite	49
T. Christman, A. Needleman, S. Nutt and S. Suresh (Providence, RI, U.S.A.)	
The influence of hydrostatic pressure on the ductility of Al-SiC composites	63
A. K. Vasudevan, O. Richmond (Pittsburgh, PA, U.S.A.), F. Zok and J. D. Embury (Hamilton, Canada)	

II PROCESSING

Microstructural aspects of aluminium-silicon carbide particulate composites produced by a casting method	73
D. J. Lloyd, H. Lagace, A. McLeod and P. L. Morris (Kingston, Ont., Canada)	
Development of nickel aluminide matrix composites	81
J.-M. Yang (Los Angeles, CA, U.S.A.), W. H. Kao (El Segundo, CA, U.S.A.) and C. T. Liu (Oak Ridge, TN, U.S.A.)	
Processing and properties of metal matrix composites containing discontinuous reinforcement	93
M. G. McKimpson and T. E. Scott (Houghton, MI, U.S.A.)	
Fabrication of intermetallic matrix composites	107
R. M. German and A. Bose (Troy, NY, U.S.A.)	
Ceramic-ceramic composites with reaction bonded matrices	117
J. S. Haggerty (Cambridge, MA, U.S.A.)	
Dispersion processing of creep resistant whisker-reinforced ceramic-matrix composites	127
J. R. Porter (Thousand Oaks, CA, U.S.A.)	

III BIMATERIAL AND BICRYSTAL

Sandwich test specimens for measuring interface crack toughness	135
Z. Suo and J. W. Hutchinson (Cambridge, MA, U.S.A.)	
Elastic-plastic analysis of a collinear array of cracks on a bimaterial interface	145
C. F. Shih and R. J. Asaro (Providence, RI, U.S.A.)	
On the mechanics of adhesion testing of flexible films	159
N. Aravas (Philadelphia, PA, U.S.A.), K.-S. Kim (Urbana, IL, U.S.A.) and M. J. Loukis (Philadelphia, PA, U.S.A.)	
Stress concentration along interfaces of elastic-plastic thin films	169
J. C. Lambropoulos and S.-M. Wan (Rochester, NY, U.S.A.)	
On elasticity solutions for cracks on bimaterial and bicrystal interfaces	177
J. L. Bassani and J. Qu (Philadelphia, PA, U.S.A.)	

CONTENTS (*continued*)

IV CHARACTERIZATION OF INTERFACES

Structure and chemistry of metal/ceramic interfaces.	187
M. Rühle and A. G. Evans (Santa Barbara, CA, U.S.A.)	
Characterization of internal interfaces in metals and alloys by high resolution electron microscopy	199
J. M. Penisson and G. Regheere (Grenoble, France)	
High resolution interface analysis	207
R. W. Carpenter (Tempe, AR, U.S.A.)	
Interfacial interactions in titanium-based metal matrix composites	217
D. G. Konitzer (Pittsburgh, PA, U.S.A.) and M. H. Loretto (Birmingham, U.K.)	

V MICROMECHANICS

The mechanical performance of fiber-reinforced ceramic matrix composites	227
A. G. Evans (Santa Barbara, CA, U.S.A.)	
Effects of matrix microstructure and particle distribution on fracture of an aluminum metal matrix composite	241
J. J. Lewandowski, C. Liu (Cleveland, OH, U.S.A.) and W. H. Hunt, Jr. (Pittsburgh, PA, U.S.A.)	
Theoretical and experimental analysis of the toughening behavior of whisker reinforcement in ceramic matrix composites	257
P. F. Becher, C. H. Hsueh, P. Angelini and T. N. Tiegs (Oak Ridge, TN, U.S.A.)	
Dynamic compressive fracture in fiber-reinforced ceramic matrix composites	261
J. Lankford (San Antonio, TX, U.S.A.)	
Behavior of interface in alumina/glass composite	269
A. Maheshwari, K. K. Chawla (Socorro, NM, U.S.A.) and T. A. Michalske (Albuquerque, NM, U.S.A.)	
AUTHOR INDEX	277
SUBJECT INDEX	279



